Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for reducing errors during data processing, comprising:

inputting data;

testing at least one number resulting from an incremental calculation of transform coefficients during a transform of the data;

detecting whether the incremental calculation of the transform coefficients will result in transform coefficients with unacceptable precision; and

if determined to be needed, refining the at least one number to obtain additional precision.

2. (Canceled)

3. (Previously Presented) The method of claim 1 wherein the transform comprises a transform matrix and wherein the refining comprises applying a refinement matrix for increasing precision of the incremental calculation of the transform constants.

4. (Original) The method of claim 3 wherein the refinement matrix comprises $I+_{d}D_{m+1}D_{m}^{-1}$.

5. (Original) The method of claim 1 further comprising generating at least one refinement matrix based on approximately calculated transform constants.

6. (Original) The method of claim 5 wherein the generating at least one refinement matrix is performed offline or at initialization.

7. (Original) The method of claim 5 wherein the generating the at least one refinement matrix comprises recognizing that an approximate transform is invertible, generating the refinement matrix given by $I+_d D_{m+1} D_m^{-1}$, and structuring the transform for efficient computation.

8. (Original) The method of claim 5 wherein the generating the at least one refinement matrix comprises:

recognizing that recovery of the nth column of a transform matrix for generating the transform is impossible;

calculating a pseudo inverse for a portion of the transform matrix; and

generating an approximation for the at least one refinement matrix using the pseudo inverse for the transform matrix.

9. (Original) The method of claim 8 wherein the approximation of the refinement matrix comprises $I+_d D_{1d} \tilde{D}_0$.

10. (Previously Presented) The method of claim 1 further comprising:

determining whether an error resulting from terminating the incremental calculation is acceptable, and aborting the incremental calculation of a transform coefficient.

11. (Original) The method of claim 10 wherein the incremental calculation is terminated when a determination is made that the incremental calculation will result in a number that is projected to be within a predetermined range.

12. (Original) The method of claim 11 wherein the number that is projected to be within a predetermined range comprises a transform coefficient that does satisfy a precision requirement.

13. (Original) The method of claim 11 wherein the incremental calculation is terminated when a refinement to the transform coefficient is determined not to change the result.

14. (Original) The method of claim 13 wherein a refinement to the transform coefficient is determined not to change the result when, after checking the relative magnitudes of the results of the incremental calculations, an intermediate calculation of at least one transform coefficient is small compared to the intermediate calculation of another transform coefficient.

15. (Original) The method of claim 13 wherein a refinement to the transform coefficient is determined not to change the result when, after checking the magnitude of the results of at least one incremental calculation, at least one intermediate calculation of the transform coefficient is less than a predetermined threshold.

16. (Previously Presented) The method of claim 1 further comprising:

determining that a transform coefficient is going to be within a predetermined range of zero, and

aborting the incremental calculation of the transform coefficient.

17-64. (Canceled)